

Title

**Beverage Can with Laminate on Top**

**Background of the Present Invention**

**Field of Invention**

5           The present invention relates to beverage cans generally and, more particular, but not by way of limitation, to novel beverage can with a laminate layer on top and method of manufacture, the laminate layer being applied to the sheet or roll metal stock before the can components are formed.

**Description of Related Arts**

10           Dirt and toxic material accumulated on the tops of beverage cans can be ingested by a drinker of the beverage unless the tops of the beverage cans are thoroughly cleansed – something that most beverage drinkers are unlikely, or unable, to do.

          It has been reported that a stock clerk in Maui, Hawaii noticed some dried mouse or rat droppings in areas of a storeroom he was sent to clean. A couple of days  
15       later, he was hospitalized and soon died from massive organ failure. The doctor attending him specifically asked if the clerk had been in a warehouse or exposed to dried rat or mouse droppings at any time. Apparently, there is a virus, much like the Hanta virus, that lives in dried rat and mouse droppings. Once dried, these droppings are like dust and can easily be breathed in or ingested if a person does not wear protective gear or fails to wash  
20       face and hands thoroughly or fails to thoroughly cleanse items with which that person may come in contact. An autopsy report confirmed the doctor's suspicions.

          It has also been reported that an investigation of soda cans by the Centers for Disease Control in Atlanta, Georgia has found that the tops of soda cans can be encrusted with dried rat's urine, which is so toxic that it can be lethal. Canned drinks are stored in  
25       warehouses and containers that are usually infested with rodents and then they get transported to retail outlets without being properly cleansed.

The truth is that even the most modern, upper-class, super store has rats and mice – and their warehouse most assuredly does. Therefore, it is most important that the tops of beverage cans, especially those that are intended to be drunk out of directly have some method of removing foreign materials from the tops thereof, even when the user is  
5 unable to thoroughly cleanse the tops of the cans with, for example, soap and water.

Some attempts to provide clean tops to beverage cans include the following:

United States Patent No. 5,292,022, issued March 8, 1994, to Blanco, and titled CLOSURE FOR BEVERAGES METAL CONTAINERS, describes in one embodiment, shown on Figure 1 of that patent, a beverage can with an adhesive protector that covers  
10 only an area around the opening of the can and that is removed upon opening the can. In a more preferred embodiment, shown on Figures 2 and 3, the protective covering covers the top of the can and has a tensioned hoop around the perimeter of the protective covering. The covering is scored and weakened, such that, when the can is opened, the protective covering splits and the two halves thereof roll up.

15 United States Patent No. 5,813,559, issued September 29, 1998, to Cho, and titled BEVERAGE CAN WITH SANITARY COVER, describes five embodiments of the invention, all of which provide a sanitary cover only over part of the beverage can top. The various embodiments attach the sanitary cover to the can by means of the rivet on top of the can. Some provide for the sanitary cover to be rotated 180 degrees before  
20 the can is opened. In others, the sanitary cover is part of the means to open the can. The differences among the various embodiments are whether and how the edge of the can is covered.

United States Patent no. 5,934,495, issued August 10, 1999, to Chiodo, and titled PROTECTIVE FILM FOR CANS OR DRINK AND FOOD CONTAINERS IN  
25 GENERAL, describes a beverage can with a biodegradable or recyclable protective film disposed over at least the upper end of the beverage can. The film is removed before opening the can by pulling tabs or the like formed at the edge or on the top of the film. Between the film and the can may be inserted inert gasses, disinfectants, gadgets, promotion leaflets, illustrations, recipes, etc. The patent contemplates that the film will be  
30 placed on the can during the filling and/or closing cycle.

United States Patent No. 6,443,323, issued September 3, 2002, to DeRose, and titled PROTECTIVE SEAL FOR CANS, describes a protective seal that is attached underneath the pull tab on a can and covers only the area of the can directly contacted by the mouth of a user. The protective seal is rotated out of the way before opening the can.

5           The foregoing devices suffer from the substantial disadvantage that they are added in a separate step after the can or at least the top thereof is manufactured. This adds significant cost to the production of the cans and requires major amendments to the assembly equipment that is expensive, demanding major revisions thereto. In some cases, the protective cover does not extend over all of the tops of the cans, permitting foreign  
10 material to enter the mouth of the person drinking the beverage in the cans or allowing the foreign material to enter the beverage can itself. Some devices require that the person using the beverage can perform an additional, awkward step when opening the beverage can.

          Furthermore, it is commonly known that beers, soda, and other beverages  
15 should be chilled to a certain temperature range for consumption with the best enjoyment. However, at the present time, there is no means to indicate the temperature of the can. Consequently, many people drink their beverages at an undesirable temperature and do not get the proper enjoyment from the experience.

          Additionally, the can lid surface area has been typically plain and without  
20 graphics. It has not been used for meaningful promotion purposes.

### Summary of the Present Invention

          Accordingly, it is a principal object of the present invention to provide a beverage can lid with a protective covering that is applied before the can lid is manufactured.

25           It is a further object of the invention to provide such a beverage can lid that has protective covering that is removed during normal opening of the can without having to perform an additional awkward step.

          It is an additional object of the invention to provide such a beverage can lid that is economically and easily manufactured.

It is another object of the invention to provide such a beverage can lid on which at a portion of or the entire the protective covering serves as a temperature indicator.

It is yet another a further object of the invention to provide such a beverage can lid in which the protective covering has graphics thereon.

- 5           It is yet an additional object of the invention to provide such a beverage can lid and method that are readily accepted by consumers.

Other objects of the present invention, as well as particular features, elements, and advantages thereof, will be elucidated in, or be apparent from, the following description and the accompanying drawing figures.

- 10           These and other objectives, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

## Brief Description of the Drawings

Understanding of the present invention and the various aspects thereof will be facilitated by reference to the accompanying drawing figures, provided for purposes of illustration only and not intended to define the scope of the invention, on which:

- 5     Fig. 1A and 1B are side elevational and top plan view of a typical metal beverage can before consumption of the contents of the beverage can.

Fig. 2A and 2B are side elevational and top plan views of the typical metal beverage can, in dispensing mode.

- 10     Fig. 3A and 3B are side elevational and top plan view of a beverage can constructed according to the present invention, with a protective laminate layer partially removed.

Fig. 4 is a fragmentary, side elevational view of a beverage can constructed according to the present invention.

## Detailed Description of the Preferred Embodiment

Reference should now be made to the drawing figures on which similar or identical elements are given consistent identifying numerals throughout the various figures thereof, and on which parenthetical references to figure numbers, when used, direct the reader to the view(s) on which the element(s) being described is (are) best seen, although the element(s) may be seen on other figures also.

Figures 1A and 1B illustrate a typical metal beverage can, generally indicated by the reference number 20. Beverage can 20 includes a body portion 30 and a top portion 32 (Figure 1B). Disposed on top portion 32 is a tab ring 40 attached to the top portion by means of a rivet 42. Tab ring 40 is disposed over a depressed area 50 at one end of which is a generally circular lightly scored line 52 defining an area 54.

Referring now to Fig. 2B, tab ring 40 has been pried up perpendicular to area 54 to the position shown (in some cases, beverage can 20 is furnished with the tab ring in the position shown on the figure) and the tab ring is raised to sever scored line 52 and depress area 54 (Fig. 1B) to create a dispensing orifice 60, with area 54 being inserted into the beverage can and in contact with the contents thereof. It will be understood that, unless top 32 has been thoroughly cleansed, foreign matter on area 54 can enter the contents of beverage can 20 and any foreign matter on the top can enter the mouth of a person drinking from the beverage can.

In the present invention, illustrated most clearly on Fig. 3B, a film or laminate 70 is applied to the flat metal stock before end 32 has even been formed. The invention requires no equipment changes in the manufacture of beverage can 20 nor does it contribute to the costs of forming in the manufacture of beverage can 20 nor does it contribute to the costs of forming the metal beverage can. Film or laminate 70 adheres to the can during the forming of top 32 and thereafter when it is attached to body 30. Protective film 70 has a pre-cut score line 61 defined around dispensing orifice 60. When a consumer "pops" open can 20, protective film 70 on the area of dispensing orifice 60 goes into the orifice along with a portion of lid 32. If the consumer wishes, the consumer can then drink the contents of beverage can 20 right away, as the consumer does now.

However, if the consumer wishes to drink from can 20 with a "clean" lid 32, the consumer can peel off protective film 70 from part of the lid. There are various score

lines and/or die cut lines 72 that can be designed on lid 32 to facilitate the removal of protective film 70 from the lid including the dispensing orifice 60.

Can lid 32 is made from a flat sheet of aluminum or coated steel on a roll. Lid 32 is stamped, formed, and tab ring 42 is then attached to the lid. The prior art uses an aluminum or steel sheet without a coating on the “top” side and with a coating on the “under” side (to protect the aluminum or steel from chemical reaction by contact with the contents of can 20). The present invention applies protective film 70 on the “top” side of the lid 32 of beverage can 20 prior to any fabrication.

Protective film 70 stays on lid 32 through the manufacturing of the lid and the final filling of beverage can 20 and the crimping of the lid onto the can body 30. During the manufacturing of lid 32, peel-off die-cut lines 72 can be incorporated in the forming and die-cutting process. For example, lines 72 are die-cut lines, raised area 73 is a formed design to facilitate the peel-back of protective film 70 along the die-cut lines 72. One of lines 72 is defined around the entire lid 32 so that protective film 70 can be peeled off for a full circle.

The specific requirements of protective film 70 include its properties of clinging to the metal undersurface when the flat stock is formed into the lid 32 of can 20. Furthermore, protective film 70 must separate readily when the dispensing tab breaks through the scored surface at the time it pulls away from the rest of lid 32. These properties may be fulfilled by any number of plasticized coatings, polyesters, or polyolefins.

Protective film 70 can be made in different colors. This gives a distinctive character to can 20. Colored protective film 70 can be used as brand identification or for a special promotion.

From time to time, beverage companies conduct promotional programs and print messages on body 30 of can 20. Because of the lead time involved, each promotion is a major undertaking for the beverage company. Consequently, the companies are limited in the number of promotions they can do. The surface area on lid 32 of can 20 is a major opportunity for promotional messages. A pre-programmed message can be printed onto protective film 70 by a jet printer or by a laser printer or by other high-speed printing means. The printing can be done either prior to the crimping of the lid or after

the crimping of the lid. Because the printing is controlled by a computer, the beverage company can run many mini-promotions using this method. And because the printing can be done right on the production line, the cost of adding the message onto protective film 70 is minimal. For a competitive industry, this is crucial factor.

5           Furthermore, protective film 70 can contain temperature sensitive ingredients that change color at various temperatures. The color of protective film 70 can be used as a method to indicate the ideal temperature for consumption.

          The temperature “indicator” can also be positioned on body 30 of can 20. One way to achieve this is to print temperature sensitive ink on can 20. The printing can be a  
10       separate “temperature indicator” like a bar or a dot. It can also be part of the overall graphics. The “temperature indicator” changes color from room temperature to the targeted chill temperature. It adds the “cool” experience of drinking the beverage.

          The laser can both print messages on protective film 70 and also cut tear-off lines 72 on the protective film. First, when filled can 20 travels along a conveyor belt, a  
15       photo sensor will detect the orientation of pull tab 40 on lid 32. Second, a laser gun is programmed to “print” the messages on the flat area on lid 32. Third, the laser gun also can “cut” protective film 70 in various patterns, as at 72, for the removal of the protective film. For example, the laser gun can create a cut line on the inside sidewall of the outer rim of beverage can 20. This is shown on Fig. 4 and will help a consumer to peel off  
20       protective film 70.

          Another option to providing protective film 70 on lid 32 is to just print or coat a layer of coating containing temperature sensitive material on the lid. The coating is not designed to be peelable.

          An additional option is to print or coat the temperature sensitive material on lid  
25       32 stock first, then laminate protect film 70 onto it. Protective film 70 covers the temperature sensitive layer during fabrication and shipping. Protective film 70 also prevents the coating material from direct contact with the contents of can 20.

          Yet another option is to have a double layer protective film 70. The “under layer” contains the temperature sensitive material and is in contact with lid 32. The “top



layer” is a see through the “upper layer”, but prevents the “under layer” from coming in contact with the product in can 20 when the can is popped open.

5 In the embodiments of the present invention described above, it will be recognized that individual elements and/or features thereof are not necessarily limited to a particular embodiment but, where applicable, are interchangeable and can be used in any selected embodiment even though such may not be specifically shown.

10 Spatially orienting terms such as “above”, “below”, “upper”, “lower”, “inner”, “outer”, “inwardly”, “outwardly”, “vertical”, “horizontal”, and the like, when used herein, refer to the positions of the respective elements shown on the accompanying drawing figures and the present invention is not necessarily limited to such positions.

One skilled in the art will understand that the embodiment of the present invention as shown in the drawings and described above is exemplary only and not intended to be limiting.

15 It will thus be seen that the objects of the present invention have been fully and effectively accomplished. Its embodiments have been shown and described for the purposes of illustrating the functional and structural principles of the present invention and is subject to change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.